DOCUMENT RESUME

ED 176 160 CG 013 761

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TITLE Self Statements, Test Anxiety and Academic Achievement: A Correlational Analysis.
PUB DATE 79
NOTE 13p.; Paper presented at the Annual Convention of the Association for Behavior Analysis: International Organization (5th, Dearborn, Michigan, June 16-19, 1979); Best copy available

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; *Anxiety; College Students; High Achievers; Higher Education; Low Achievers; *Predictive Ability (Testing); *Self Concept; *Testing Problems; *Test Wiseness

ABSTRACT

An investigation of self-statements, test anxiety and academic achievement studied 426 college students. Research methodology is defined, demographics and student profiles for both facilitative and debilitative test anxiety are presented, with the resulting findings for each testing component. The student profile for high facilitative test anxiety is the exact opposite of high debilitative test anxiety where a student experiences high pretest anxiety, poor attention to the specific task at hand, fixated thinking about previous mistakes, self-criticism during the examination, doubts about academic ability, low academic self-perception and no use of mental imagery during examination. Poor academic performance is attributed, in large measure, to test anxiety. (Author/LS)

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SELF STATEMENTS, TEST ANXIETY AND ACADEMIC ACHIEVEMENT: A CORRELATIONAL ANALYSIS

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CG013761

Presented at the Association for Behavior Analysis, Dearborn, Michigan, 1979.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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SUBJECTS: 426 college students from Psychology classes at James Madison University

INSTRUMENTS:

A. Alpert-Haber Achievement Anxiety Test (AAT); N = 426

B. Academic Questionaire (AQ); N = 426

C. Suinn Test Anxiety Behavior Scale (STABS); N = 197

D. Spielberger Test Anxiety Scale (TAS); N = 229

E. Self report grade point average (GPA); N = 426

A TOTAL OF 426 COLLEGE STUDENTS WERE USED IN AN INVESTIGATION OF SELF-STATEMENTS, TEST ANXIETY AND ACADEMIC ACHIEVEMENT. THE STUDY WAS CONDUCTED DURING EACH OF TWO SEMESTERS. DURING THE FIRST SEMESTER 197 STUDENTS WERE ADMINISTERED THE ALPERT-HABER ACADEMIC ACHIEVEMENT TEST (AAT) WHICH INCLUDES A FACILITATIVE ANXIETY SCALE (AATF) AND A DEBILITATIVE ANXIETY SCALE (AATD), THE SUINN TEST ANXIETY BEHAVIOR SCALE (STABS) AND THE ACADEMIC QUESTIONAIRE (AQ) WHICH EXAMINES THE RELATIONSHIP BETWEEN SELF-STATEMENTS AND ACADEMIC ACHIEVEMENT. EACH STUDENT ALSO REPORTED THEIR CUMULATIVE GRADE POINT AVERAGE (GPA). DURING THE SECOND SEMESTER 229 STUDENTS WERE ADMINISTERED THE AAT, THE AQ AND THE SARASON TEST ANXIETY SCALE (TAS). A SELF REPORT GPA WAS OBTAINED.

SIGNIFICANT NEGATIVE CORRELATIONS WERE OBTAINED BETWEEN GPA AND AATD ($p=.001$), AATF AND AATD ($p=.001$), AATF AND STABS ($p=.003$), GPA AND TAS ($p=.001$) AND AATF AND TAS ($p=.001$). SIGNIFICANT POSITIVE CORRELATIONS WERE OBTAINED BETWEEN GPA AND AATF ($p=.001$), AATD AND STABS ($p=.001$) AND AATD AND TAS ($p=.001$). GPA AND STABS WERE NOT SIGNIFICANTLY CORRELATED.

THE POSITIVE CORRELATION BETWEEN AATF AND GPA WOULD INDICATE THAT HIGH FACILITATIVE TEXT ANXIETY IS RELATED TO A HIGHER GRADE POINT AVERAGE. THE NEGATIVE CORRELATION BETWEEN AATD AND GPA WOULD SEEM TO INDICATE THAT HIGHER DEBELITATIVE TEST ANXIETY IS RELATED TO A LOWER GRADE POINT AVERAGE. THE NEGATIVE CORRELATION BETWEEN TAS AND AATF AND THE POSITIVE CORRELATION BETWEEN TAS AND AATD INDICATES THAT TAS MEASURES DEBILITATIVE ANXIETY. LIKEWISE, THE NEGATIVE CORRELATION BETWEEN STABS AND AATF AND THE POSITIVE CORRELATION BETWEEN STABS AND AATD WOULD INDICATE THAT STABS IS A MEASURE OF DEBILITATIVE ANXIETY. THE NONSIGNIFICANT CORRELATION BETWEEN GPA AND STABS INDICATES THAT STABS IS A WEAK PREDICTOR OF GPA.

A PRINCIPLE COMPONENTS FACTOR ANALYSIS WITH A VARIMAX ROTATION WAS PERFORMED SEPARATELY FOR THE 165 MALES AND THE 261 FEMALES. FOR BOTH SEXES A BIPOLAR FACILITATIVE FACTOR AND A UNIPOLAR DEBILITATIVE FACTOR COULD BE IDENTIFIED. FOR MALES THE FACILITATIVE FACTOR ACCOUNTED FOR MORE VARIANCE THAN DID THE DEBILITATIVE FACTOR. FOR FEMALES THE DEBILITATIVE FACTOR ACCOUNTED FOR MORE

VARIANCE THAN DID THE FACILITATIVE FACTOR. EXTRACTING TWO FACTORS SUPPORTS ALPERT AND HABER'S ORIGINAL ASSUMPTION CONCERNING TEST ANXIETY.

THE SUBJECT'S RESPONSES TO THE ACADEMIC QUESTIONAIRE WERE FACTOR ANALYZED USING THE PRINCIPLE COMPONENTS PROCEDURE WITH A VARIMAX ROTATION. THE RESULTS INDICATED THREE DISTINCT AND DEFINABLE FACTORS ACCOUNTING FOR 16.59, 10.54 AND 8.16 PERCENT OF THE VARIANCE, RESPECTIVELY. THE FIRST FACTOR CONSISTED OF 7 AQ QUESTIONS RELATING TO THE VARIABLE OF WORRY. THE SECOND FACTOR CONSISTED OF 6 AQ QUESTIONS RELATING TO THE USE OF SELF-STATEMENTS. THE THIRD FACTOR CONSISTED OF 4 AQ QUESTIONS RELATING TO THE USE OF MENTAL IMAGERY DURING A TEST TAKING SITUATION. THUS, TWO OF THE THREE FACTORS ARE DIRECTLY RELATED TO THE INFLUENCE OF SELF-STATEMENTS AND MENTAL IMAGERY DURING THE EXAMINATION PROCESS.

CORRELATIONS BETWEEN AQ QUESTIONS AND THE AATF AND AATD ADD FURTHER SUPPORT TO THE FACTOR ANALYSIS RESULT. USING THE CORRELATION ANALYSIS A PROFILE OF A STUDENT SHOWING HIGH DEBILITATIVE TEST ANXIETY AND A STUDENT SHOWING HIGH FACILITATIVE TEST ANXIETY WAS CONSTRUCTED.

A. DEMOGRAPHIC ANALYSIS

STUDY 1 (N = 197)

MALES (N = 57)	FEMALES (N = 140)	ANOVA RESULTS
MEAN GPA = 2.62	MEAN GPA = 2.95	P < .001
MEAN AATF = 25.02	MEAN AATF = 24.84	NS
MEAN AATD = 27.23	MEAN AATD = 28.86	NS
MEAN STABS = 118.57	MEAN STABS = 124.81	NS

STUDY 2 (N = 229)

MALES (N = 108)	FEMALES (N = 121)	ANOVA RESULTS
MEAN GPA = 2.62	MEAN GPA = 2.91	P = .0002
MEAN AATF = 26.18	MEAN AATF = 24.31	P = .0017
MEAN AATD = 27.69	MEAN AATD = 27.63	NS
MEAN TAS = 15.06	MEAN TAS = 16.35	NS

OVERALL (N = 426)

MALES (N = 165)	FEMALES (N = 261)	ANOVA RESULTS
MEAN GPA = 2.62	MEAN GPA = 2.93	P < .001
MEAN AATF = 25.78	MEAN AATF = 24.59	P = .0071
MEAN AATD = 27.53	MEAN AATD = 28.29	NS

B. CORRELATION MATRIX

	GPA	AATF	AATD	STABS	TAS
GPA	1.0000	.2664 P = .001	-.2713 P = .001	-.1070 NS	-.2390 P = .001
AATF		1.0000	-.1962 P = .001	-.2127 P = .003	-.4056 P = .001
AATD			1.0000	.4578 P = .001	.6566 P = .001
STABS				1.0000	-
TAS					1.0000

FACTOR ANALYSIS OF THE ALPERT-HABER ACHIEVEMENT TEST BROKEN DOWN BY SEX

AAT ITEM	Factor Loadings: MALES FACTOR I	MALES FACTOR II	FEMALES FACTOR I	FEMALES FACTOR II
(Debilitating Items)				
1	-.61	.40	.49	-.49
3	-.02	.28	.36	-.12
4	-.09	.17	.58	-.14
5	-.65	.34	.32	-.18
7	-.40	.54	.49	.03
11	-.22	.52	.43	-.02
13	-.16	.37	.18	-.09
14	-.25	.34	.50	-.11
17	.02	.55	.37	-.07
19	-.01	.52	.59	-.04
(Facilitating Items)				
2	.59	-.01	-.00	.56
6	.67	-.23	-.45	.44
8	.25	.08	-.02	-.05

9	-.05	-.09	-.11	.06
10	.18	-.11	-.06	.06
12	.33	-.12	-.09	.09
15	.51	.04	-.05	.48
16	-.37	-.02	.03	-.09
18	.46	-.20	-.04	.04
% Variance	30.36%	12.33%	27.68%	9.29%
Factor Label	Fac	Deb	Deb	Fac

ACADEMIC QUESTIONAIRE

A. AQ QUESTIONS WHICH CORRELATE POSITIVELY WITH AATD AND NEGATIVELY WITH AATF:

4 5 6 7 8 16 17 18 25 29 30

IMPLICATIONS:

1. AQ 4 - 8: ANXIETY BEFORE A TEST; THE HIGHER THE AATD THE HIGHER THE PRETEST ANXIETY.
2. AQ 16 - 17: ATTENTION TO PREVIOUS QUESTION (AQ16) AND ATTENTION TO REMAINING QUESTIONS (AQ17); THE HIGHER THE AATD THE MORE ATTENTION IS FOCUSED ON THE PREVIOUS QUESTIONS OR ON THE REMAINING QUESTIONS.
3. AQ 18: THINKING ABOUT PREVIOUS MISTAKES; THE HIGHER THE AATD THE MORE ATTENTION IS PLACED ON PREVIOUS MISTAKES.
4. AQ 25: SELF CRITICISM: THE HIGHER THE AATD THE MORE THE SELF CRITICISM.
5. AQ 29: CONCENTRATING ON REMAINDER OF THE TEST AFTER MAKING A MISTAKE; THE HIGHER THE AATD THE MORE DIFFICULT IT IS TO CONCENTRATE ON REMAINDER OF THE TEST.
6. AQ 30: DOUBTS ACADEMIC ABILITY; THE HIGHER THE AATD THE MORE SELF DOUBT. SIMILAR TO AQ 25.

B. AQ QUESTIONS WHICH CORRELATE POSITIVELY WITH AATF AND NEGATIVELY WITH AATD:

1 12 15 20 21 28 33

IMPLICATIONS:

1. AQ 1: SELF CONFIDENCE; THE HIGHER THE AATF THE MORE SELF CONFIDENT THE STUDENT (SEE AQ 30 ABOVE).
2. AQ 12: PERFORMING AT MAXIMUM ACADEMIC POTENTIAL; THE HIGHER THE AATF THE BETTER THE STUDENT'S SELF-PERCEPTION.
3. AQ 15: ATTENTION TO TASK AT HAND; THE HIGHER THE AATF THE BETTER THE SELECTIVE ATTENTION TO THE TASK AT HAND (SEE AQ 16,17,18, AND 25 ABOVE).
4. AQ 20 -21: DEVELOP AND UTILIZE MENTAL IMAGES (AQ 20) AND VIVIDNESS OF MENTAL IMAGES (AQ21); THE HIGHER THE AATF THE MORE VIVID AND UTILIZED THE MENTAL IMAGE.
5. AQ 28: CONCENTRATING ON SPECIFIC TASK; SIMILAR TO AQ 15.
6. AQ 33: POOR ACADEMIC PERFORMANCE ATTRIBUTED TO TEST ANXIETY; THE HIGHER THE AATF THE LESS POOR PERFORMANCE IS ATTRIBUTED TO TEST ANXIETY.

FACTOR ANALYSIS OF THE ACADEMIC QUESTIONAIRE

	FACTOR LOADINGS		
AQ QUESTIONS	I	II	III
4	[.37	.03	.02
5	.79	-.02	.01
6	.86	.08	-.02
7	.78	.09	-.07
8	.75	-.02	-.05
18	.34]	.13	.03
19	.06	.16	[.56
20	-.09	.05	.85
21	-.07	.08	.86]
22	.04	[.67	.11
23	-.04	.80	.05
24	.07	.68	.11
25	.17	.54	.02
26	-.04	.56	.11
27	.07	.55]	[-.37]
29	[.31]	.05	.17
% VARIANACE	16.59%	10.54%	8.16%
FACTOR LABEL	WORRY	SELF-STATEMENTS	MENTAL IMAGERY

PROFILE OF A STUDENT WITH HIGH DEBILITATIVE TEST ANXIETY

1. High pretest anxiety.
2. Attention to past and future sections of the examination. Poor specific task attention.
3. Fixated thinking about previous mistakes.
4. Self critical self-statements during the examination.
5. Doubts academic ability.
6. Low academic self-perception.
7. Does not use mental imagery during examination.
8. Poor academic performance attributed to test anxiety.

PROFILE OF A STUDENT WITH HIGH FACILITATIVE TEST ANXIETY

1. Low pretest anxiety.
2. Attention to specific task at hand.
3. Little thinking about previous mistakes.
4. Little self-criticism during the examination.
5. Does not doubt academic ability.
6. High academic self-perception.
7. Uses mental images during examination.
8. Does not attribute poor academic performance to test anxiety. Rather attributes poor academic performance to unfair grading.

MAJOR FINDINGS

THE MAJOR FINDING OF THE PRESENT INVESTIGATION MAY BE STATED AS FOLLOWS:

1. AATF IS POSITIVELY CORRELATED WITH GPA.
2. AATD AND TAS ARE NEGATIVELY CORRELATED WITH GPA.
3. AATF IS NEGATIVELY CORRELATED WITH AATD, STABS AND TAS.
4. AATD IS POSITIVELY CORRELATED WITH STABS AND TAS.
5. TAS AND STABS ARE MEASURES OF DEBILITATIVE TEST ANXIETY.
6. STABS IS NOT SIGNIFICANTLY CORRELATED WITH GPA.
7. A SLIGHTLY DIFFERENT FACTOR STRUCTURE RESULTS WHEN THE AAT RESPONSES FROM MALES ARE FACTORED AS COMPARED TO THE FACTOR ANALYSIS FOR FEMALE AAT RESPONSES.
8. IN BOTH CASES, HOWEVER, THE FACTOR ANALYSIS OF AAT RESULTS IN TWO FACTORS; A UNIPOLAR DEBILITATIVE FACTOR AND A BIPOLAR FACILITATIVE FACTOR. FOR MALES THE FACILITATIVE FACTOR ACCOUNTS FOR MORE VARIANCE THAN DOES THE DEBILITATIVE FACTOR. FOR FEMALES THE DEBILITATIVE FACTOR ACCOUNTS FOR MORE VARIANCE THAN DOES THE FACILITATIVE FACTOR.
9. A PRELIMINARY ANALYSIS WAS UNDERTAKEN OF AN INSTRUMENT WHICH SEEKS TO DETERMINE THE RELATIONSHIP BETWEEN SELF-STATEMENTS AND TEST ANXIETY. A FACTOR ANALYSIS OF THIS INSTRUMENT YIELDED THREE DISTINCT FACTORS. TWO OF THESE FACTORS WERE DIRECTLY RELATED TO THE INFLUENCE OF SELF-STATEMENTS AND MENTAL IMAGERY IN TEST TAKING.
10. AN ANALYSIS OF THE CORRELATIONS BETWEEN AQ QUESTIONS AND AATF AND AATD GUIDED THE CONSTRUCTION OF A PROFILE OF A STUDENT WITH HIGH DEBILITATIVE TEST ANXIETY AND A PROFILE OF A STUDENT WITH HIGH FACILITATIVE TEST ANXIETY.